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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/820,168	04/07/2004	Ronald F. Mathis	A-1911	7032

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EXAMINER	
NGUYEN, LINH V	

ART UNIT	PAPER NUMBER
2819	

DATE MAILED: 05/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/820,168	MATHIS ET AL.	
	Examiner	Art Unit	
	Linh V. Nguyen	2819	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 April 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *17* is/are allowed.

6)☒ Claim(s) *1,3 and 5-16* is/are rejected.

7)☒ Claim(s) *4* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to amendment filed on 4/4/05. Claims 1, 11, have been amended. Claim 2 has been canceled. Claims 12 – 17 have been added. Claims 1, 3 – 17 are pending on this application.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3, 6, 7, 8, 11, 12, 14, 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Kober et al. U.S. Patent No. 6,380,879.

Regarding claim 1, Fig. 11 and 12 and Col. 10 lines 5 - 7 of Kober et al. discloses high-speed signal processor which acquisition system and a high-speed analog-to-digital functions as a waveform converter (Col. 2 lines 1 - 17), said processor (Fig. 11, 12) comprising: a filter system (148a,b,n), for dividing a single input signal (140) into a series of adjacent frequency bands (144a , 144b, 144n; Col. 9 lines 65 – Col.10 line 2); a frequency down converting (172a,b,n) one or more of the adjacent frequency bands144a,b,n) as they are output from the filter system (148a,b,n); a digitizer (180a,b,n) for digitizing each frequency band output from said filter system (Col. 10 lines

5 – 16); and a system (188a,b,n) for reconstructing the original input signal (Col. 5 lines 55 - 59).

Regarding claim 3, wherein said filter system comprises an M-band filter bank (148a,b,n)

Regarding claim 6, wherein the M- band filters in M-band filter bank are implemented electronically (Col. 2 lines 55 - 67).

Regarding claim 7, wherein the M- band filters of filter bank are implemented using software (Col. 2 lines 55 - 67).

Regarding claim 8, wherein each channel output is equalized, to thereby shape the transfer function of the channel into that of an M-band filter (Fig. 3 disclosing each channel output [48a ... 48n] is equalized in bandwidth and the output shape transfer function for each output channel is implemented by band filters Fig. 1 [44a – 44n]).

Regarding claim 11, the claim incorporated substantially the same subject matter as of claim 1, and rejected along the same rationale.

Regarding claim 12, wherein said dividing step is performing using filters having a perfect reconstruction property (Col. 5 lines 55 – 56).

Regarding claims 14 and 16, wherein none of the steps involve removing noise supplied in the single input signal (Fig. 11 disclosing no noise removing step from the single input signal 140)

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 5 rejected under 35 U.S.C. 103(a) as being unpatentable over Kober et al. as applied to claim 3 above, and further in view of Konig U.S. Reg. Number H1059.

Fig. 8 of Kober et al. as applied to claim 3 above disclosed a M-band filters bank (44) for channelizing. However, Kober et al. fails to disclose wherein the M-band filters bank are implemented optically using fiber optics.

Fig. 2 of Konig discloses the M-band filters bank (10_1 .... 10_n) for channelizing (Col. 2 lines 2 – 3) are implemented optically using fiber optics.

Kober et al. and Konig are common subject matter for filter bank. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to implement the bank filter of Kober et al. by using fiber optics taught by Konig's filter, since it has been held to be within the general skill of a worker in the art to select a know material on the basis of its suitability for the intended use as a matter of obvious design choice. *See In re Leshin, 227 F.2d 197, 125 USPQ 416 (CCPA 1960)*

(selection of a known plastic to make a container of a type made of plastics prior to the invention was held to be obvious)

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kober et al. as applied to claim 8 above, and further in view of Bayya et al. U.S. Patent No. 5,963,889.

Kober et al. as applied to claim 8 above, disclosed wherein each channel output is equalized (Fig. 3 disclosing each channel output [48a ... 48n] is equalized in bandwidth). However, Kober et al. fails to disclose wherein the channel equalization is implemented with Weiner filter technology.

Bayya et al. disclose channel equalization is implemented with Weiner filter technology (Col. 2 lines 8 – 10).

Kober et al. and Bayya et al. are common subject matter for channel equalizer. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the Weiner filter for channel equalizer taught by Bayya et al. into channel equalizer of Kober et al.'s filter for the purpose of providing noise suppression by compensate for non-uniform frequency response in voice channel (Bayya et al., Col. 2 lines 8 – 12).

7. Claim 10, 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kober et al. as applied to claims 1 and 11 above, and further in view of Comino et al. U.S. Patent No. 6,075,820.

Fig. 8 of Kober et al. as applied to claim 1 above disclosed processing system having a filter system (44, Col. 4 lines 66 - 67) for dividing an input signal (40) into a series of adjacent frequency bands (48a, 48b, 48c, 48d. See Col. 5 lines 1 – 6); a digitizer (74) for digitizing each frequency band output from said filter system (See Col. 7 lines 35 – 37); and a system (60) for reconstructing the original input signal (Col. 5 lines 55 - 59). However, Kober et al. fails to disclose a calibration signal is continuously injected in a manner such that it passes through the same point as said single input signal, into said processor to serve as a reference for quantifying and removing hardware errors.

Fig. 5 of Comino et al. disclose a calibration signal (CALIBRATION SIGNAL) is continuously injected in a manner such that it passes through the same point as said single input signal (Fig. 1) into said processor (200) to serve as a reference for quantifying and removing hardware errors (Col. 2 line 62 - Col. 3 line – 5 disclosing a calibration signal is generated a ratio of the output power levels, this ratio is then used to correct for mismatch error between first and second channels).

Kober et al. and Comino et al. are common subject matter for channelizing the input frequency. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporated the calibration signal taught by Comino et al. into Kober et al. for the purpose of correcting mismatch error between each channel (Comino et al., Col. 3 lines 1 – 5).

Allowable Subject Matter

8. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not teach the M-band filters in said M-band filter bank enable perfect reconstruction, meaning that the sum of the cascaded responses of the M-band analysis filters followed by the synthesis filters produces an overall flat amplitude response and group delay.

9. Claim 17 is allowed, the prior art does not teach the M-band filters in said M-band filter bank enable perfect reconstruction, meaning that the sum of the cascaded responses of the M-band analysis filters followed by the synthesis filters produces an overall flat amplitude response and group delay.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance.

Conclusion

10. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Cited References

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited references are relating to filter bank with digitizing.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linh Van Nguyen whose telephone number is (571) 272-1810. The examiner can normally be reached from 8:30 – 5:00 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Michael Tokar can be reached at (571) 272-1812. The fax phone numbers for the organization where this application or proceeding is assigned are (703-872-9306) for regular communications and (703-872-9306) for After Final communications.

05/13/05

Linh Van Nguyen

Art Unit 2819

Michael Tokar
Supervisory Patent Examiner
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